



PATENT

Serial No.: 09/160,991  
Filed: September 25, 1998  
Group Art Unit: 3724  
Examiner: Hwei-Sui Payer  
Applicant: Zhang et al.  
Title: CUTTING DIE AND METHOD OF FORMING  
Atty. Docket: BERL-18A

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

**DECLARATION OF COMMERCIAL SUCCESS**  
**UNDER 37 C.F.R. §1.132**

I, Paul Madill, hereby state and declare the following:

I am President and CEO of Bernal Technologies Inc., a subsidiary of the owner/assignee of the above-identified patent application. I have been in the employ of Bernal Technologies Inc. or its predecessor in interest since 1966, and in my present capacity since 1999. Bernal Technologies Inc. is a leading manufacturer in the world of cutting dies. Bernal Technologies Inc. sold to Shorewood Packaging a cutting die having the name of King Size Outer Wrap and product number 100's for cutting their paperboard products, and sold to Mead Packaging cutting dies having product numbers 10391-1 and 10391-2 for cutting their paperboard products. The sales occurred in 1999 and 2000. These cutting dies were produced by Bernal Technologies in accordance with the method set forth and claimed in the present application. Specifically, a rotary die cylinder of a soft material was formed, and a hard material was laser cladded onto a rotary die cylinder in a pattern as requested by Shorewood and by Mead for their products. The clad material was then shaped to form a sharp blade. Even more specifically, a rotary die cylinder of a 4150 steel of HRC 28 was formed, and a powdered

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CPM10V Steel of HRC 60 was cladded onto the rotary die cylinder using a CO<sub>2</sub> laser. The clad material was then shaped by EDM to form a sharp blade.

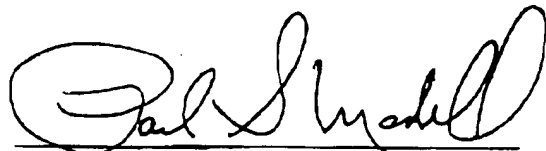
It is this new die which is the subject of the Statements of Graham Bell of Shorewood Packaging and Gregg Harrison of Mead Packaging, filed herewith, and which provides the advantages set forth therein. These advantages are provided by and are due to our manufacturing process of heating the die body surface with a laser and laser cladding a blade material that is harder than the die body onto the heated area to build up a hard, near net shape blade which is then shaped with minimal machining.

Further Declarant sayeth naught.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

7/5/2001



Paul S. Madill, President and CEO  
Bernal Technologies Inc.



Hwei-Sui Payer, Examiner

Assistant Commissioner for Patents

Dear Examiner Payer,

My name is Gregg Harrison and I am an employee of Mead Packaging. I am a Manufacturing Engineering Specialist in Atlanta and have worked with rotary dies for 17 years. We are currently using rotary cutting dies utilizing Bernal's Ultra Alloy (laser cladding) process die #10391-1, 10391-2. These cutting dies produced by Bernal Technologies are superior to other cutting dies we are currently using. With these dies, we have experienced a longer life than with any other cutting dies. The time and cost to repair these dies is very high and longer life dies result in more output for our facility. The repair operation thus not only causes down time in the plant to switch the dies, but also causes a great deal of time and cost to transport and repair the dies. With the new cladded dies provided by Bernal Technologies, we have experienced a wear life of the die blades that is greater than dies we have previously used. The frequency with which we must endure the loss of productivity of the plant and the expense and time of transporting and repairing cutting dies has been reduced. The longer useful life of the blades translates into cost savings for our plant. In my opinion this die represents a significant advancement in cutting die technology.

This declaration is not to be used for any advertisement, endorsement or publications, and is used solely for use in establishing patentability.

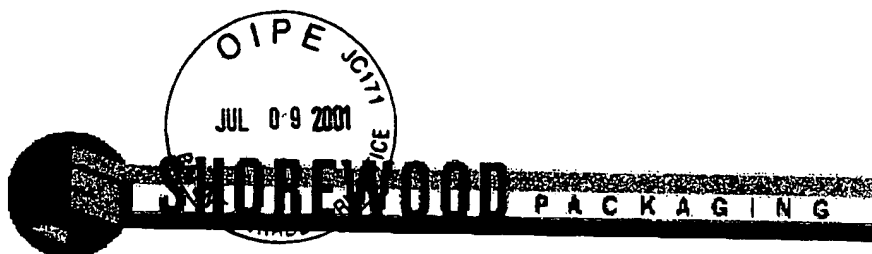
Sincerely,

*Gregg Harrison 7/5/01*

Gregg Harrison

Manufacturing Engineering Specialist

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July 3, 2001

Hwei-Sui Payer, Examiner  
Assistant Commissioner for Patents

Dear Examiner Payer,

My name is Graham Bell and I am an employee of Shorewood Packaging. I am in charge of the Rotary Die Department in Smiths Falls and have worked with rotary dies for over 20 years. We are currently using rotary cutting dies utilizing Bernal's laser cladding process die on slides and outers configuration. These cutting dies produced by Bernal Technologies are superior to other cutting dies we are currently using. With these dies, we have experienced a significantly longer life than with any other cutting dies. The time and cost to repair these dies is very high and longer life dies result in more output for our facility. The repair operation thus not only causes down time in the plant to switch the dies, but also causes a great deal of time and cost to transport and repair the dies. With the new cladded dies provided by Bernal Technologies, we have experienced a wear life of the die blades that is many times greater than dies we have previously used. The frequency with which we must endure the loss of productivity of the plant and the expense and time of transporting and cutting dies has been significantly reduced. The longer useful life of the blades translates into huge cost savings for our plant. In my opinion, this die represents a significant advancement in cutting die technology.

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Sincerely,

Graham Bell  
Maintenance Foreman

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